Summary of Kalorama Room Research Subgroup Discussion

CROSS-CUTTING ISSUES

- Need to have a system in place to incorporate new knowledge about teaching and learning
- All three domains are critically interrelated.
- Explore and strengthen the kind of research designs that work best for education as opposed to medical model.
- Improve the feedback system between valuable research and practice. (Research in and of itself is not enough; key stakeholders are not invited in the process early enough; research has to be translated and disseminated; utilize the internet for disseminating valid research and connecting with those who need-to-know)
- Must look not only at success (what works) but also failure (what does not work).
- Can we really conduct "gold standard" research given the external variables outside of the research subject's envelope of the classroom?
- Opportunity to coordinate: Get stronger leverage from research universities to help improve education research and for these research universities to help colleges of education.
- Demand for researchers exceeds supply. Need incentives to encourage entry into the field of education science and research.

DOMAINS

Curriculum and Instruction

Issues:

- There is a lack of data on what works in accelerating the learning curve across states and how the elements (standards, curriculum, etc.) work together.

Ideal:

- To be able to match the right kind of teaching to the right learner at the right time.
- Track math and science teacher graduates to see what they are doing.

Barriers:

- Disconnect between tests and teaching for understanding.
- Teachers lack familiarity with thinking skills
- The cultural properties and belief systems of school mathematics mitigates against changing the ways of teaching and learning regardless of what research may show.

Cognitive Foundations of Mathematical Competence

Discussion generally dealt with whether broader ranging education research, especially as it engages cognitive and brain scientists, might produce effective new metaphors or frameworks. (See third bullet in crosscutting issues.)

Issues:

- What would a process map for learning math look like? What and how do context variables affect this map?
- How can students be well prepared for conceptual learning?
- What do we know about influences on learning beyond the traditional schoolhouse or classroom (incidental learning)? (See crosscutting issue, 6th bullet.)
- How do children learn to reason quantitatively (and be inclined to do so)?
- Are there differences in cognitive processes for learning in reading and learning in math? Can we build on existing models in other fields, developed in other federal arenas?

Ideal:

- If given the variables within any teaching situation, then an appropriate intervention (ranging from constructivist to traditional) can be deduced from what is known to be most efficacious.

Barriers:

- Current models of cognition are outmoded. Need richer models.
- An uneasy meshing of the math/science research arena as well as between science and school science and mathematics and school math.

Assessment

Much of this discussion focused on how the NCLB creates a critically important new set of data that all members of the educational system (administrators, teachers, researchers, etc.) must learn to use well. Research findings and data sets must both be used more skillfully throughout the research enterprise.

Issues:

- How can learning and understanding be assessed?
- What are the most effective ways for training administrators and teachers in using data for decision-making?
- How can we improve the data infrastructure capacity for broad usage?
- What would an ideal data management system look like?
- What incentives would lead researchers to support an ideal data management system?
- Where is the locus of control in funding and administering a nationally significant comprehensive data management system

Ideal:

- To have valid highly reliable instruments for capturing data to learn about the practice of teaching.

- To create rich interoperable data sets at the federal level, (drawn from data generated at all levels) for all researchers/constituents to tap into to answer critical questions.
- To have "clean" data sets.
- Data is useful, data is accessible
- Incentives exist for contributing data to a DMS
- Incentives exist for using data in a DMS
- Data management system is long term and reliable and can be sustained across administrations

Barriers:

- Mistrust of the effectiveness of diagnostic assessments.
- Lack of appropriate instrumentation especially for qualitative data that can be compared and meshed with quantitative data.
- Determining the locus of control of the DMS, e.g., overseen by one or multiple entities; public or private entities?
- Reluctance of schools to participate in pilot/research projects
- Turnover of staff, students, administrators impairs longitudinal tracking.
- States have different approaches in collecting data. Different systems do not produce comparable data.

<u>Opportunities for Coordination</u>

- Training school personnel in working effectively with data.
- Work with information science professionals to learn more about the universe of knowledge management structures, knowledge and data aggregation and classification, systems interoperability, transparency of data, and access.
- Establish federal-level education data standards
- The bulk of data generated by requirements of NCLB is at the State level. A common starting point would be the title I data requirements.

Other questions that were raised included: What data do we currently have (local, state, national)? What questions can be answered with this data? What questions can't be answered with this data? What mechanisms exist to pull all this data together?

Resources

- Allocate more resources to R&D (disproportionate federal investment in education compared to health research).
- Education research funding should be stable, not episodic.
- Federal grants should have a set-aside requirement for funding evaluation and research.